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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

NAFF, DAVID M

ART UNIT PAPER NUMBER

1657

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,699

Applicant(s)

CHENG ET AL.

Examiner

David M. Naff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-6 and 8-26 is/are pending in the application.
- 4a) Of the above claim(s) 11-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-6 and 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A response of 7/14/06 to an office action of 3/28/06 presented arguments and did not amend the claims.

Claims in the application are 1, 3-6 and 8-26.

5 Claims 11-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 12/15/04.

Claims examined on the merits are 1, 3-6 and 8-10.

10 The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1, 3-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole (4,320,151) in view of Boinot et al (2,529,131) and Bass (3,983,255) and De Sa et al (4,337,123), and if
15 necessary in further view of Heikkila et al (5,730,877) for reasons in the previous office action of 3/28/06, and for reasons herein.

The claims are drawn to a composition containing a thermolabile protein, which can be an enzyme, admixed with a liquor waste.

20 Cole discloses increasing thermal stability of amylase by adding the enzyme to a concentrated sugar solution (col 6, lines 8-15). Solutions of 40-60% sucrose, dextrose, fructose, invert syrup and corn syrup protected amylase at 170° F and 180° F (col 8, lines 45-68 and Table 9, col 9). Cole further discloses that it had been previously

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found in that prior art that 20-40% sucrose increased enzyme activity at 63° C (about 145° F) (col 4, lines 59-62).

Boinot et al disclose that vinasse (residue from distilling to produce alcohol that is a waste) (col 1, line 28) contains
5 unfermentable sugar (col 1, lines 9-33), and converting the unfermentable sugar to fermentable sugar (col 3, lines 48-61, and col 4, lines 33-38).

Bass discloses concentrating vinasse (molasses fermentation residues after distilling that is a waste) (col 1, lines 25-30) to 75-
10 80% solids and drying the concentrate (col 3, line 44 and lines 55-58) for use in animal food or fertilizer.

De Sa et al disclose that vinasse is a waste, which disposing of is a problem (col 1, line 20 to col 2, line 14).

Heikkila et al disclose that vinasse can be fractioned to obtain
15 fractions rich in sucrose (col 1, lines 23-25).

It would have been obvious to use vinasse to supply the sugar in the sugar solution that amylase is added to stabilize the amylase during heating as disclosed by Cole as suggested by Boinot et al and Bass, and if needed Heikkila et al, disclosing that vinasse contains
20 sugar, and can be concentrated and dried, and as further suggested by De Sa et al disclosing that disposing of vinasse is a problem, and finding a use for vinasse will be of benefit. Vinasse is a liquor waste and mixing vinasse with the amylase of Cole will result in a composition as presently claimed. The waste liquors of claims 3-5
25 would have been suggested by De Sa et al disclosing fermentable plant

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materials including sorghum and hydrolyzed cellulosic materials that can be used in processes resulting in vinasse (col 2, lines 45-55).

Response to Arguments

Applicants urge that the references suggest that vinasse is a source for purifying sugar, which is different from mixing vinasse directly with the amylase of Cole. However, the disclosure that vinasse can be fractioned to supply sucrose would have suggested to the ordinary skilled artisan that vinasse contains sucrose. It would have been obvious to add the sucrose-containing vinasse directly to the amylase of Cole to avoid the cost, time and energy required for separating the sucrose. Furthermore, Boinot et al disclose that vinasse contains unfermentable sugar that can be hydrolyzed to fermentable sugar. The unfermentable sugar would have been expected to provide increased thermal stability to the amylase of Cole, and it would have been obvious to add the vinasse directly to avoid the expense, time and energy required for separating the unfermentable sugar. Moreover, the fermentable sugar is still present in the vinasse that results from hydrolyzing the unfermentable sugar in the vinasse. It would have been obvious to add to the amylase of Cole the vinasse containing fermentable sugar resulting from the hydrolysis treatment. The claims do not exclude vinasse treated to form glucose.

Contrary to applicants' argument, the disclosure that vinasse is a waste does not suggest that it will be harmful if consumed by humans when added to the amylase of Cole that is used for baking. The harmful effect of vinasse as a waste results from the biochemical

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oxygen demand (BOD) of the vinasse (De Sa et al, col 1, lines 30-35), and not from the vinasse containing substances that will be expected to prevent its use in a food. As is apparent from De Sa et al (col 1, lines 25-27), the vinasse contains organic and mineral substances
5 resulting from fermenting plant material with yeast. These components would not have been expected to be harmful if consumed since they are natural substances resulting from fermenting the plant material with yeast. Yeast is used to ferment dough in baking. If vinasse resulting from fermenting plant material with yeast was considered
10 harmful to humans, then fermenting dough with yeast would have been expected to be harmful to humans.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

15 A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the
20 shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

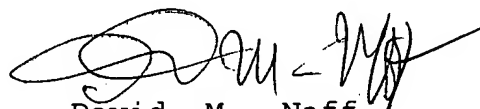
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

5 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

15



David M. Naff
Primary Examiner
Art Unit 1651

20 DMN
10/16/06